An Inquiry into Fertility in the American South during the 1990s

Leonard M. Lopoo

Assistant Professor of Public Administration
Maxwell School of Citizenship and Public Affairs

Senior Research Associate
Center for Policy Research

426 Eggers Hall
Syracuse University
Syracuse, NY 13244-1020
lmlopoo@maxwell.syr.edu

March 2005

Rough Draft
Please do not cite

I am grateful to Doug Wolf for several helpful conversations. This project was supported with a grant from the UK Center for Poverty Research through the U.S. Department of Health and Human Services, Office of the Assistant Secretary for Planning and Evaluation, grant number 02ASPE417A. The opinions and conclusions expressed herein are solely those of the author and should not be construed as representing the opinions or policy of the UKCPR or any agency of the Federal government.

Abstract

This study describes the fertility of women in the American South, the poorest region in the United States, using data from the 1990s. Southern women aged 15 to 44 have average fertility rates that are consistent with women in other regions of the country. The primary difference in southern fertility occurs during the teenage years and early 20s when southern women have much higher fertility rates. Among teenagers, these higher rates are driven both by composition and behavior. Although southern African American women do not differ from their counterparts in other regions of the country in fertility rates, the large proportion of African American women in the South partially explains the high southern teenage rates. In addition, the South has fewer white teenagers as a proportion of the total population than most other regions of the country, but southern white teenagers have higher fertility rates than white teenagers elsewhere. Southern teenage mothers have fewer nonmarital births and less education than teenage mothers in the rest of the country.

Since at least the early 1800s when Thomas Malthus developed the first economic theory of fertility, social scientists have written extensively trying to understand the relationship between fertility and a family's economic well-being. Perhaps most prominent among this research is the work of Gary Becker (1960, 1991; Becker and Lewis 1973) who developed a variety of models to explain the negative relationship between family income and total fertility in developed countries. More recently, social scientists have shown that single-motherhood often leads to poverty (Duncan and Rodgers 1991; Eggebeen and Lichter 1991) and that over the course of the last 40 years that there has been considerable growth in single motherhood among women with poor economic prospects (Ellwood and Jencks 2004).

The direction of the causality between poverty and family structure remains an open question, however. As mentioned earlier, there is evidence that as countries industrialize and average family incomes increase, families have fewer children. On the other hand, since most children do not work and contribute to family income, the more children in a family, the more likely the family is to be poor, all else equal. Consider a woman who lives alone and earns $11,000 per year. In 2003, the poverty threshold for this woman was $9,573, and although she is not earning a considerable sum of money, she would not be identified as poor. If, however, she has a child, both must live on the same income. The poverty threshold for a single person with one child in 2003 was $12,682. Given her current income, both the mother and her child would be counted among the poor.

This paper takes a different tactic to address the poverty-fertility question than previous research. Rather than trying to establish causality within this relationship, this paper investigates the fertility behavior of women in the American South, the poorest region of the United States,[1] highlighting the unique features of fertility in this region. More specifically, this paper asks if southern women have their children at younger ages when perhaps they are less mature, and if so, why; if southern mothers have less education than mothers in other regions of the country; if southern mothers are more likely to bear children out-of-wedlock; and if southern mothers have more children as teenagers than women in the rest of the country. All of these factors, age, education, nonmarital childbearing, and number of births may lead to higher rates of poverty.

During the first half of the 20th century, southern fertility rates tended to be much higher than the rest of the country (Tolnay and Glynn 1994). While several sources have reported that teenage fertility rates are higher in the South than elsewhere today (Moore

[1] In 2003, 35.9 million people or 12.5 percent of the United States population was poor. Hidden in these statistics are dramatic regional differences in poverty. Nine of the ten "states" (including the District of Columbia) with the highest proportion of poor people were located in the southern census region. Given that most of the poorest states are in the South, it is not surprising that this region had the highest poverty rate, 14.1 percent, compared to 11.3 percent in the Northeast, 10.7 percent in the Midwest, and 12.6 percent in the West (DeNavas-Walt, Proctor, and Mills 2004).

et al. 2001; U.S. General Accounting Office 1998), to the best of my knowledge, there is little research that attempts to explain the higher teenage rates in the South or ask if overall fertility rates continue to be higher in the South compared to the rest of the country.

The analyses in this paper suggest that southern women in general have mean fertility rates that are no different from women in the rest of the country, but that southern women, at least during the 1990s, were much more likely to have their children at younger ages. The differences at young ages are due to both the demographic composition of the population of southern women, which has higher proportions of racial and ethnic groups that have high fertility rates, as well as to behavioral differences primarily among southern whites. I also find that teenage mothers in the South have less education compared to teenager mothers elsewhere, but are more likely to be married at the time of the birth.

Given the extensive literature which shows a negative relationship between teenage childbearing, poverty, and welfare receipt (Geronimus and Korenman 1992; Hoffman, Foster, Furstenberg 1993; cf Hotz, McElroy, and Sanders 1997), this paper suggests one potential avenue through which fertility might impact poverty in the American South: teenage childbearing. Further, it suggests that policies and programs designed to reduce teenage childbearing in the United States may have a disproportionate effect on the American South, potentially reducing poverty there.

This paper proceeds as follows: I begin by describing the literature that is relevant to this question, paying particular attention to the literature on teenage childbearing. Next, I detail the data I will use in this analysis followed by the methods I employ. In the subsequent section I report results. I conclude and discuss these results in the final section.

Previous Research

There are several reasons to believe that fertility rates in the South may be different from other regions of the country. The descriptive demographic literature regularly notes different fertility rates among racial and ethnic groups. In 2001, the general fertility rate for women aged ten to 49 was 65.3 per 1,000 in the U.S. Among non-Hispanic, white women, the rate was 57.7 compared to 69.1 for non-Hispanic African American women and 96 for Hispanic women (Hamilton, Sutton, and Ventura 2004). In 2001, there were notable differences by racial and ethnic category for teens as well. The fertility rates for teenagers aged 15 to 19 was 45.3 per 1,000 females. Among non-Hispanic whites, the rate was 30.3 compared to 73.5 for non-Hispanic African Americans and 86.4 for Hispanic women (Hamilton, Sutton, and Ventura 2004). Table 1 reports the percentage of the U.S. population that was white, non-Hispanic white, African American, and Hispanic (of any race) in 2000. This table shows that the South has the highest proportion of African Americans with nearly one in five southerners being African American. The South is the region with the second highest percentage of Hispanics at 11.6 percent, a distant second behind the West. Given the high proportion of African Americans and Hispanics, one might expect higher fertility rates in the South compared to the rest of the country.

[Table 1 about here]

As implied earlier, economists have also contributed greatly to the fertility literature. Becker (1960, 1991) argues that total fertility is inversely related to the cost of children. The costs of children include both direct costs, such as food and health care, as well as time costs. Thus, the higher the direct and time costs, all else equal, the fewer children a mother should have. Most empirical investigations for women have focused on the impact of cost changes on the timing of fertility with findings that suggest that increases in health costs (Leibowitz 1990) or tax costs (Dickert-Conlin and Chandra 1999; Whittington, Alm, and Peters 1990) are inversely related to the timing of childbearing. Researcher have also consistently showing that the greater their potential economic status, the less likely teenage women are to have children (Duncan and Hoffman 1990; Leibowitz, Eisen, and Chow 1986; Michael and Joyner 2000; Mincer 1963; Wolfe, Wilson, and Haveman 2001). Given the different economic context of the South, one might expect to find some differences in fertility.

Public policies have also been linked to fertility for similar reasons, i.e., they impact the costs and benefits of childbearing. Since AFDC/TANF benefits fall primarily to single parents with children, this program creates incentives for non-marital childbearing (Murray 1984). Further, benefit levels are tied to family size, which could create an incentive for multiple children (Moffitt 2004). Moffitt (2004) summarized the welfare literature concluding that although the effects are not strong, welfare benefits do seem to have some impact on family structure. Recent empirical work on this topic has been relatively consistent confirming Moffitt’s conclusion that welfare benefits are positively related to teenage childbearing (Kaestner, Korenman, and O’Neill 2003; Levine 2002).

In addition to the changes in the welfare program, Child Support Enforcement (CSE) policies became stricter throughout the 1980s and 1990s. Because these changes were designed to increase the cost of paternity to men who do not marry the mothers of their children, several researchers have hypothesized that they should have affected young men's decisions to engage in unprotected sexual intercourse, thereby lowering the likelihood of a teenage birth. Of course, CSE policies should have reduced the cost of bearing a child out-of-wedlock for mothers so, theoretically, the effect of CSE is ambiguous. Despite the theoretical ambiguity, the empirical research has consistently shown that efforts to expand CSE, enforce paternity establishment, and implement presumptive guidelines reduce childbearing (Aizer and McLanahan 2003; Case 1998; Plotnick et al. 1999).

Economists have also argued that the probability that a pregnant women will chose an abortion is inversely related to the cost of abortion (Levine 2004; Lundberg and Plotnick 1995). Lundberg and Plotnick found that white adolescents were more likely to abort in states with funding assistance compared to white adolescents who resided in states that did not offer assistance.

Data

To measure teen fertility rates, I use a couple of data sources. First, I use data from the National Center for Health Statistics (NCHS) detailed natality series to obtain population data on the number of births to females aged 15 to 44 by race/ethnicity i.e., non-Hispanic white (hereafter referred to as "white"), non-Hispanic African American (hereafter referred to as "African American"), Hispanic (which includes Hispanic white and

Hispanic African American), Asian or Pacific Islander (both Hispanic and non-Hispanic), and American Indian (both Hispanic and non-Hispanic) in each state from 1992 to 1999.[2] I also use the corresponding annual state population estimates by age, race/ethnicity, state, and year from the U.S. Bureau of the Census from 1992 to 1999. I generated age*race/ethnicity*state*year specific fertility rates by dividing the total number of births to females of a given age and race/ethnicity in each state each year by the total number of women of the same age and race/ethnicity. These data sources are reported by Mathews, Sutton, and Ventura (2004) in the National Vital Statistics Reports, and I duplicate the rates they report.[3] In addition to these data, I cull state level data from a variety of sources. Please see the Data Appendix for a description of all variables and their sources. Descriptive statistics are reported in Table 2.

[Table 2 about here]

A couple of things are noteworthy about the South. First, as will be emphasized later, average fertility rates among women aged 15 to 44 are no different in the South than the rest of the country. However, teenage fertility rates are much higher there. Second, the racial and ethnic differences in the South are important to consider. Once one only considers women aged 15 to 44, over one in five southern women is African American. The South has fewer Hispanic, Asian or Pacific Islander, and American Indian women as well. Third, the South had lower average wage rates and lower policy benefits during the 1990s. Finally, southern states appear to have emphasized parental

[2] Following Hamilton, Sutton, and Ventura (2004), I group Aleuts and Eskimos in the American Indian category.
[3] One exception is the Hispanic category. Hamilton, Sutton, and Ventura classify Hispanics as any individual regardless of race who reports being Hispanic. Given the small numbers of Asian and Pacific Islanders and American Indians who report being Hispanic, I include African Americans and whites who report being Hispanic in the Hispanic category only and include Hispanic Asian or Pacific Islanders in the Asian or Pacific Islander category and Hispanic American Indians in the American Indian category.

consent laws more, while non-southern states were more likely to use mandatory delay laws.

Methods

To obtain some detail on fertility in the South, I use a variety of methods. I begin by reporting mean fertility rates by age, race/ethnicity, and region using a simple t-test to determine if there are statistically significant differences in fertility rates by region. Next, I decompose the difference in the average fertility rates in the South versus the "non-South" by five-year age groups into compositional and behavioral differences by race/ethnicity using Oaxaca's (1973) decomposition. I assume that the average fertility rate in the South can be modeled as follows:

(1) $$\overline{FR}_s = \overline{R}_s{}' \beta_s .$$

The vector *R* contains an indicator for African American, Hispanic, White, Asian or Pacific Islander, and American Indian and is run without a constant. For those who do not reside in the South, I model average fertility rates as

(2) $$\overline{FR}_{ns} = \overline{R}_{ns}{}' \beta_{ns} .$$

The difference, therefore, is

(3) $$\overline{FR}_s - \overline{FR}_{ns} = \overline{R}_s{}' \beta_s - \overline{R}_{ns}{}' \beta_{ns}$$

(3b) $$= \overline{R}_s (\beta_s - \beta_{ns}) + \beta_{ns} (\overline{R}_s - \overline{R}_{ns})$$

(3c) $$= \overline{R}_{ns} (\beta_s - \beta_{ns}) + \beta_s (\overline{R}_s - \overline{R}_{ns})$$

The first term in 3b represents the difference in the behavioral effects by race/ethnicity for those in the South compared to those who reside elsewhere. The second term represents the difference in racial/ethnic composition in South versus elsewhere. Equations 3b and 3c differ in terms of the weights placed on the difference in the behavioral component (the difference in the betas) and the difference in the composition (the difference in the proportion of the region each race/ethnicity). I report results from both equations, but there is little difference in the magnitude of the two components across equations.

As explained earlier, the South appears to differ from the rest of the country mostly in terms of the age when women have their children. Since teenage childbearing is associated with many deleterious outcomes, I focus on teenage childbearing for most of the remainder of the paper. To explain the differences in teenage fertility in the South compared to the rest of the country, I estimate the following weighted least squares (WLS) model[4] using the state level dataset described below:

(4) $$\textit{Fertility Rate}_{dart} = \boldsymbol{\beta}_{\mathbf{d}} + \varepsilon_{dart},$$

where the subscript d represents the census division,[5] the subscript a represents the age, the subscript r represents race/ethnicity, the subscript t represents the year, *Fertility Rate* is the number births to females of a given age divided by the population of women that age (* 1000), and **β** is a vector of division fixed effects.[6] I will omit the division in the U.S. with the lowest teenage fertility rates (i.e., the New England division). One should interpret the coefficients in the vector **β**, therefore, as the mean difference in fertility between the New England division and the division, d, averaged over the 1990 to 1999

[4] All weights in the models are based on the age-specific population in the state.
[5] The U.S. Bureau of the Census divides the country into nine divisions. Please see the appendix for a list of states and the corresponding Census regions and divisions.
[6] To account for the heterogeneity produced by using grouped data with a different number of women in each state, I report robust standard errors for all weighted least squares models.

period. The results from this model should explain if there are statistically discernable differences in teenage fertility rates in the South relative to the New England division.

Next, to explain these regional differences in fertility, I will add a sequence of covariates to Model 4 based on the literature describe above. Ultimately, I will estimate the following model of division by age by racial/ethnic group by year fertility rates:

(5) $\mathit{Fertility\ Rate}_{dart} = \boldsymbol{\beta}_{\mathbf{d}} + \boldsymbol{\alpha}_{\mathbf{a}} + \boldsymbol{\gamma}_{\mathbf{r}} + \mathbf{X}_{\mathbf{st}}\mathbf{'}\boldsymbol{\mu} + \varepsilon_{dart}$.

Namely, I will add a set of demographic covariates, including a vector of age indicator variables to control for the age composition of the state population. Among teenagers, I expect a monotonic increase in the fertility rates by age (Hamilton, Sutton, and Ventura 2004). To account for differential fertility rates by race and ethnicity, I will also add indicators for African American, Hispanic, Asian or Pacific Islander, and American Indian. The omitted variable is white.

In addition to these demographic factors, I also control for a variety of economic factors that vary by state and year. I add a measure for the state unemployment rate to account for the strength of the state economy. I will also add measures for the average female and male weekly wage earned within each state to represent the opportunity costs of a birth. Finally, I will include several policy measures to account for governmental factors that many have impacted women’s fertility, including the maximum welfare benefit for a family of four, the relative strength of the Child Support Enforcement Program proxied by the total state expenditures on CSE,[7] as well as indicators for parental consent before abortion and a mandatory delay. I lag these economic and policy measures a year to account for the gestation period of a birth.

[7] This measure is identical to the one used by Aizer and McLanahan (2003).

As each set of variables is added to the initial model, I will report how the division effect changes. Since these division effects are the only measures in Model 4, they represent a combination of demographic, economic, and policy effects. As I add covariates to the model, the division effects will change depending on the correlation between the added covariate and the division as well as the correlation between the added covariate and fertility rates. For instance, we know that age is positively related to teenage fertility rates (Hamilton, Sutton, and Ventura 2004). Thus, depending on the age composition of teenagers in the state, controlling for these measures may increase the mean state effect (for relatively young states) or decrease the mean state effect (for relatively old states). One reason teenage fertility rates may have been higher in most southern states is that they have relatively old teens compared to other states from 1992 to 1999. This technique will test this hypothesis.

Finally, I use NCHS data on *mothers* who had births in either 1990 or 1999 to calculate the regression-adjusted division effects for the probability that the birth reported in the year was nonmarital and for the mother's number of years of education. I use a probit model for the probability of nonmarital birth and a weighted least squares model for the number of years of education. I estimate both models for the sample of mothers aged 15 through 44 as well as the sub-sample of women aged 15 to 19. For the teenagers, I also use a weighted least squares model for the parity of the birth. All models include controls for age, Hispanicity, and a vector of racial categories reported on the birth certificate.

Results

Figure 1 displays the average annual fertility rate per 1,000 women aged 15 to 44 by census division. The New England division had the lowest annual fertility rate at just over 57 births per 1,000 females. The three southern divisions had average annual fertility rates ranging from 62 to 71 births per 1,000 females. Rates in the South Atlantic and the East South Central divisions were similar to rates in the Middle Atlantic, East North Central, and West North Central divisions, while the rate in the West South Central division falls between the Mountain and Pacific divisions. Obviously, the South did not have the lowest average annual fertility rates during the 1990s, but it did not have the highest either.

[Figure 1 about here]

Averaging fertility rates from ages 15 to 44 smoothes out the differences in the age when women are having their children. Figure 2 shows annual age-specific teen fertility rates averaged during the 1990s for women in the four census regions. Teenage fertility rates, which are typically measured from age 15 to 19, are higher in the South than any other region of the country. Further, around age 22 the fertility rates appear to peak in the South mostly declining for every age through 44. In fact, after age 28, the fertility rates in the South are lower than any other region until age 40. Thus, these rates demonstrate that while average fertility rates in the South are no different from the rest of the country, the age profile of fertility in the South is much different with southern women having their children at young ages. It is also noteworthy that women in the West have high fertility rates throughout women's fertile years. Women in the Northeast have the lowest fertility rates until their mid-20s and the highest rates throughout most of their 30s.

[Figure 2 about here]

Figure 3 shows a similar diagram this time breaking women up by racial/ethnic category and by South/non-South residence. This diagram illustrates a couple of noteworthy points. First, African American and Hispanic women appear to have age profiles that are consistent regardless of region of the country. In other words, there does not appear to be an interaction between the South and these racial/ethnic groups. If there is any relationship for teenagers at all, it appears that African American and Hispanic teenagers had lower fertility rates in the South relative to the rest of the country. Among white women, there does appear to be a difference in the age-fertility profile by region, however. Southern white women are much more likely to have children at a young age compared to white women who reside in other regions of the country. Interestingly, in their late 20s, southern white women become less likely to have children than white women in the rest of the country with non-southern women having higher rates at every age thereafter. As was the case for African American women, there does not appear to be much different in the age-specific fertility of Asian or Pacific Islander women. On the other hand, the fertility rates of non-South American Indian women appear to be higher than the fertility rates of southern American Indian women. Of course, this racial group represents such a small proportion of the population that these differences probably do not explain much of the difference in regional fertility. Thus, one might conclude from this figure that the reason that southern women have higher teenage rates is due both to composition and behavioral differences. Since African American teens have higher rates of teenage childbearing and because the South has a disproportionate number of African American females, we should expect higher fertility rates in the South. In addition, there appears to be a behavioral difference among southern whites that is likely leading to differential fertility as well.

[Figure 3 about here]

To quantify the differences illustrated in Figure 3, I report the mean differences in fertility rates by racial/ethnic group for those in the South compared to those who do not reside in the South by five-year age groups (see Table 3). These results suggest that African American teenagers and women aged 20 to 24 have mean fertility rates that are the same across regions. After age 25, however, African American who do not reside in the South have higher fertility rates than African American women in the South, with the difference peaking at 11.8 births per 1,000 women aged 30 to 34.

[Table 3 about here]

Among Hispanics, non-South women have higher rates at every age. Among teenagers the difference is four births per 1,000 females, but insignificant, rising to 12.1 births per 1,000 females aged 20 to 24. The difference declines for every age group after 20 to 24 falling to 3.1 for 40 to 44-year-olds.

The difference by region in average fertility rates for white women is quite different as suggested by Figure 3. White teenagers in the South have much higher fertility rates compared to white teenagers in the rest of the country. The average difference for white teenagers during the 1990s was 14.7 births per 1,000 women. The difference is even larger for women in their early 20s with a difference of 16 births per 1,000 females. Interestingly, during the late 20s, the rates between white teenagers begin to converge. In fact, among 25- to 29-year-olds, the rates for non-southern women are higher than the average fertility rate for women in the South. In their early 30s, the difference is quite large, 13.9 births per 1,000 females, after which the rates begin to converge again.

Among Asian or Pacific Islanders and American Indians, those who do not reside in the South have higher fertility rates across the age range than those who reside in the South with the exception of 25- to 29- year-old Asian or Pacific Islanders. The differences for Asian or Pacific Islanders is always less than seven. The differences are much larger for American Indians with the maximum difference of over 18 births for those 30 to 34.

It is difficult to get an idea of the relative importance of the behavioral differences and the compositional differences between the races in the different regions from Table 3. In Table 4, I report results from an Oaxaca decomposition breaking the mean differences in fertility rates by age across region (South vs. non-South) into a behavioral component (difference in betas) and a composition component (differences in means).

The first panel of Table 4 shows that on average southern teens have fertility rates that are 15.6 births per 1,000 females greater than teen rates among women in other regions of the country. The first column weights the mean differences in racial/ethnic composition by the non-South racial/ethnic coefficients and the second column weights the difference in the betas by the racial composition in the South. The second two columns do just the opposite. The differences between the two sets of results are not large so I will concentrate on the results from the first two columns.

The results from the first column suggest that the differences in the proportion of African Americans in the South should have increased the difference between the regions by over 13 births, while the fact the South had a lower proportion of Hispanics reduced rates by over two births per 1,000 females and the lower proportion of whites reduced rates by about 2.6 births per 1,000. Asian or Pacific Islanders and American Indians together reduced the compositional difference by about one birth per 1,000 females. Collectively, the differential composition accounts for 7.3 births per 1,000 or 47 percent of the difference in the mean teenage fertility rates.

[Table 4 about here]

The behavioral differences contributed a larger proportion of the difference. The higher propensity of white teenagers to have children in the South accounted for over nine additional births per 1,000 females. The lower propensity of African Americans in the South to have children as teenagers reduced rates by about 0.1 of a birth per 1,000 females, while Hispanic teens have a slightly lower propensity for births in the South leading to an decrease in the difference of 0.5 births per 1,000 females. Together, the behavioral components suggest a difference of about 8.3 births.

Interestingly, the differences in fertility rates in the early 20s can be broken down similarly with the higher proportion of African Americans in the South generating higher average fertility rates by about 17.7 births while the differential fertility of white mothers in their early 20s contributing a difference of about ten births. The differential composition of Hispanics, whites, and Asian or Pacific Islanders actually reduces the differences more than was the case for teenagers. In total, southern women in their 20s have mean fertility rates that are about 14.2 births per 1,000 females higher.

In their late 20s, women in other regions of the country have higher fertility rates than those in the South. Although the high proportion of African Americans pushes the southern rates higher by about 12 births, the lower proportion of Hispanics, whites, and

Asian/Pacific Islanders more than makes up for this difference. Most of the behavioral components reduce the difference for women in their late 20s as well. African Americans and whites in particular have lower rates in the South at these ages.

Results from the 30s and early 40s are consistent with those for women in their late 20s. While the higher proportions of African Americans do push up the average southern rate, the lower proportion of Hispanics and whites along with the differential fertility behaviors of southern whites in these older ages creates higher average rates in the rest of the country relative to the South.

The results reported above do not distinguish between the different divisions within the South and assume a consistent propensity to birth across the South and non-South. Further, the models only consider the demographic characteristics within each region. Below, I move to a more elaborate analysis trying to explain the difference in the average fertility rates of teenagers comparing the three southern districts to the New England district, the district with the lowest mean teen fertility rates during the 1990s. Since teenage births are higher in the South and, as explained earlier, teenage births are more a cause of social concern, I focus on this group. In addition, this analysis uses not only the demography of the teens, but also several economic and policy measures.

To quantify these teenage differences, I report results from equations 4 and 5 in Table 5. The baseline model shows the difference between each Census division and the New England division, which had with the lowest teenage fertility rates during the 1990s. The baseline model shows that the West South Central was the region with the highest teen fertility rates at 72 births per 1,000 females or 38.1 births more than the New England division. The East South Central division had the second highest average fertility rates at 67 (or 33.2 more than New England). The Pacific division was next at 58.2 births per 1,000 teenagers followed by the South Atlantic division at 58.1 births. Obviously, treating the South as homogeneous is a limiting assumption. However, all three southern divisions ranked in the top four highest fertility rates in the 1990s and the South Central divisions were the highest two divisions.

[Table 5 about here]

In Model 2, I add controls for the age composition and for the racial/ethnic composition of the state. Controlling for these demographic factors reduces the difference between the New England division and every other division in the country, with the exception of the West North Central division. The fertility rate in the South Atlantic division declines by 48 percent to 12.7 births per 1,000 teenagers. The average fertility rates in the East South Central division fell by 24 percent and the rates in the West South Central division fell by 41 percent.

In Model 3, I add several economic measures to control for the potential opportunity cost of birth. The coefficients for the southern divisions fall again. The South Atlantic division drops to 9.1 births per 1,000 teenagers or a 29 percent decrease compared to the Model 2 result. The East South Central division falls by 37 percent, while the West South Central declined by 25 percent from the Model 2 value. All three differences remain statistically significant.

Finally, in Model 4, when I add the policy measures, the differences decline again. The South Atlantic declines to seven births per 1,000 teenagers and the difference is no longer statistically significant. The East South Central division coefficient drops to 13 births, a 29 percent decrease from Model 3, but remains statistically significant. The difference between the West South Central division and New England declines as well to 13.5 births per 1,000 teens.

With the controls, the Pacific division now has the highest teen fertility rates in the United States followed by East and West South Central divisions. The South Atlantic division has declined in rank appreciably and now falls into the middle of the pack. Collectively, the demographic controls, economic controls, and policy controls explain 71.2 percent of the difference between the South Atlantic and the New England division, 60.9 percent of the difference between the East South Central division and New England, and 64.6 percent of the difference in the West South Central division and New England.

In Table 6, I report regression-adjusted division effects for all mothers aged 15 to 44 in each Census division in 1990 and 1999. Each cell contains the division effect controlling for age, race, and ethnicity. I use both 1990 and 1999 to avoid drawing conclusions that may reflect tempo effects. A couple of findings are noteworthy. First, southern women are statistically significantly less likely to have nonmarital births compared to women in the New England division. The largest differences are observed for the West South Central division where the probability difference ranges between 11.1 and 14.8 percentage points.[8] In addition, southern women have lower and statistically significant differences in the years of education ranging from one-quarter of a year to over one-half of a year. These differences are not the most extreme, however. Mothers in the Pacific division and in the East North Central division have average education levels that are at least as large.

[Table 6 about here]

[8] Marginal effects are reported for the probit models of the probability of a nonmarital birth.

In Table 7, I report regression-adjusted division effects for all teenagers aged 15 to 19 in each Census division in 1990 and 1999. Each cell contains the division effect controlling for age, race, and ethnicity. The first two columns show results from a model in which the outcome is the birth order of the child born in that year. Results from 1999 suggest that southern teenage mothers had more children as teenagers than in New England and every other division in that year. However, the results from 1990 call into question any definitive conclusions about the magnitude of the difference in number of children. The second two columns report marginal effects for a model of the probability that the birth was nonmarital. Consistently, the births in the South are less likely to be nonmarital compared to the births in the New England division. The marginal effects suggest that a teenage birth in the South is between 20 and 43 percentage points less likely to be nonmarital compared to New England. Results from the models of education suggest that teenagers in the South have much lower education levels (last two columns). Compared to teenage mothers in New England, southern teenage mothers have between a one-tenth and one-quarter of a year less education. Estimates from other regions are inconsistent depending on the year observed, but the table strongly suggests that southern teenage mothers have the lowest education levels in the country.

[Table 7 about here]

Conclusions

Social scientists have puzzled over the relationship between fertility and economic status for quite some time with arguments showing that the causality flows in both directions. This study took a different approach to addressing the relationship between fertility and economic position with the intent to describe several features of fertility in the American South, the poorest region in the United States. Findings suggest that unlike the period immediately preceding the Baby Boom, fertility rates for all women in the South are no higher than fertility rates for women in the rest of the country. However, looking at fertility rates for all women masks the fact that southern women seem to have their children at young ages and have very low fertility after their late 20s. This is stark contrast to women in other regions of the country, notably women in the Northeast who delay childbearing until later years.

The explanation for the high fertility rates at young ages can be partly attributed to the high proportion of African American women in the South as well as to the high fertility rates at young ages for white women in the American South. This paper also suggests that 60 and 70 percent of the difference in teenage fertility between the New England Census division and the southern census divisions can be explained by demographic, economic, and policy factors. This research suggests several potential sources for policy intervention. Of course, it is difficult to know the magnitude of each contribution given that many of the economic and policy variables may be capturing latent factors. In the future, researchers may attempt to solve for the relative importance of each of these factors separately.

We know that teenage childbearing is associated with a variety of deleterious outcomes, including poverty and welfare receipt. Thus, this paper offers one potential mechanism that may explain some of the poverty in the American South: teenage childbearing. The paper offers an additional insight. It suggests that not only are teens more likely to have children in the South, but also among *teenage mothers*, those in the

South have the least education and the difference may be as large as a quarter of a year of education. In other words, the South is the region of the country where teenage childbearing is most prevalent and teenage mothers in the South are potentially more economically vulnerable than teenage mothers anywhere else. Thus, programs to improve the educational attainment of teenage mothers as well as programs designed to reduce teenage childbearing may have a disproportionately beneficial impact on southern states.

Of course, these results do not test the impact of southern teenage childbearing on poverty rates specifically. As such, drawing definitive conclusions about the link between southern poverty and teenage fertility awaits more investigation. Nevertheless, these results do show that southern fertility relative to fertility in the rest of the country has changed over the past half century. Further, they suggest that teenage childbearing in the South is unique and worthy of more scholarly attention.

Appendix - United States Census Regions and Divisions

Northeast

New England
Connecticut
Maine
Massachusetts
New Hampshire
Rhode Island
Vermont

Middle Atlantic
New Jersey
New York
Pennsylvania

Midwest

East North Central
Illinois
Indiana
Michigan
Ohio
Wisconsin

West North Central
Iowa
Kansas
Minnesota
Missouri
Nebraska
North Dakota
South Dakota

South

South Atlantic
Delaware
Florida
Georgia
Maryland
North Carolina
South Carolina
Virginia
Washington, DC
West Virginia

East South Central
Alabama
Kentucky
Mississippi
Tennessee

West South Central
Arkansas
Louisiana
Oklahoma
Texas

West

Mountain
Arizona
Colorado
Idaho
Montana
Nevada
New Mexico
Utah
Wyoming

Pacific
Alaska
California
Hawaii
Oregon
Washington

DATA APPENDIX

Race/ethnicity-age-specific fertility rate: total number of births to women of a given age and race/ethnicity divided by the total population of females of the same age and race/ethnicity in the state; Source: Birth numbers were extracted from the National Center for Health Statistics Natality Data Series CD-ROMs. I use the *Bridged-Race 1990-1999 Intercensal Population Estimates (Single-year of Age Detail) for Calculating Vital Rates* downloaded from the U.S. Census Bureau Web page: http://www.cdc.gov/nchs/about/major/dvs/popbridge/popbridge.htm. Accessed March 2, 2005.

Age: a set of indicator variables from age 16 to age 44 (15 is omitted) equal to one for the observations with the comparable age-specific fertility rate, e. g., Age 16 equals one for age 16 fertility rates, zero for fifteen-, seventeen-, eighteen-, and nineteen-year-old birth rates.

African American: indicator variable equal to one for non-Hispanic African American fertility rates; Source: same as fertility rates.

Hispanic: indicator equal to one for Hispanic fertility rates; Source: same as fertility rates.

State Unemployment Rate: Source: U.S. Bureau of the Census' *Statistical Abstract of the United States*, various years.

Mean of women's weekly wage distribution: The mean of the weekly wage distribution for all women aged 25-64 in a state inflated to 1999 dollars using the CPI-U-X1; Source: March CPS, various years.

Mean of men's weekly wage distribution: The mean of the weekly wage distribution for all men aged 25-64 in a state inflated to 1999 dollars using the CPI-U-X1; Source: March CPS, various years.

Welfare Benefits: Maximum AFDC/TANF amount per month for a family of four, inflated to 1999 dollars using the CPI-U-X1; Source: Robert Moffitt's publicly available data: http://www.econ.jhu.edu/People/Moffitt/DataSets.html.

Total State CSE Expenditures: the total amount of expenditures eligible for federal funding that is claimed by the states during the year for the administration of the child support program. (includes all amounts claimed during the current or a previous fiscal year. The amounts being reported have been reduced by the amount of program income – fees and costs recovered in excess of fees and interest earned and other program income received—by the states). Source: Bendheim-Thoman Center for Research on Child Wellbeing/Columbia University School of Social Work Data Base of State Information.

Parental Notification/Consent Laws: an indicator variable equal to one in the years a woman, 18 or younger, was required either to notify or obtain parental consent before obtaining an abortion; Source: Phillip Levine (2004).

Mandatory Delay: an indicator variable equal to one in the years a state required a mandatory waiting period before allowing an abortion; Source: Levine (2004).

References

Aizer, A. and S. McLanahan. 2003. "The Impact of Child Support on Fertility, Parental Investments and Child Health and Well-Being." Paper presented at the Population Association of American Meetings, Minneapolis, MN.

Becker, Gary S. 1960. "An Economic Analysis of Fertility," in *Demographic and Economic Change in Developed Countries.* Princeton, NJ: Princeton University Press.

Becker, Gary S., 1991. *A Treatise on the Family*. Enlarged edition. Cambridge, MA: Harvard University Press.

Becker, Gary S. and H. Gregg Lewis. 1973. "On the Interaction between the Quantity and Quality of Children." *Journal of Political Economy* 81(2), Part 2: S279-S288.

Case, A. "The Effects of Stronger Child Support Enforcement on Nonmarital Fertility." 1998. Pp. 191-215 in *Fathers Under Fire: The Revolution in Child Support Enforcement*, edited by Garfinkel, S.S. McLanahan, D. R. Meyer, and J. A. Seltzer. New York: Russell Sage Foundation.

DeNavas, Carmen, Bernadette D. Proctor, and Robert J. Mills. 2004. Current Population Reports, P60-226. "Income, Poverty, and Health Insurance Coverage in the United States: 2003." Washington, DC: U.S. Government Printing Office.

Dickert-Conlin, Stacy and Amitabh Chandra. 1999. "Taxes and the Timing of Births." *Journal of Political Economy* 107: 161-177.

Duncan, Greg J. and Saul Hoffman. 1990. "Economic Opportunities, Welfare Benefits, and Out-of-Wedlock Births Among Black Teenage Girls." *Demography* 27: 519-35.

Duncan, Greg J. and Willard Rodgers. 1991. "Has Children's Poverty Become More Persistent?" American Sociological Review 56(4): 538-50.

Eggebeen, David J. and Daniel L. Lichter. 1991. "Race, Family Structure, and Changing Poverty Among American Children." *American Sociological Review* 56(6): 801-817.

Ellwood, David and Christopher Jencks. 2004. "The Spread of Single-Parent Families in the United States since 1960." In *The Future of the Family*, edited by Daniel P. Moynihan, Timothy M. Smeeding and Lee Rainwater. New York: Russell Sage Foundation.

Geronimus, Arline T. and Sanders Korenman. 1992. "The Socioeconomic Consequences of Teen Childbearing Reconsidered." *Quarterly Journal of Economics* 107(4):

1187-1214.

Hamilton, Brady E., Paul D. Sutton, and Stephanie J. Ventura. 2004 (originally published in 2003). "Revised Birth and Fertility Rates for the 1990s and New Rates for Hispanic Populations, 2000 and 2001: United States." *National Vital Statistics Reports* Vol. 51, No. 12. Hyattsville, MD: National Center for Health Statistics.

Hoffman Saul D, E. Michael Foster, and Frank F. Furstenberg. 1993. "Reevaluating the Cost of Teenage Childbearing." *Demography* 30(1): 1-13.

Hotz, V. Joseph, Susan Williams McElroy, Seth G. Sanders. 1997. "The Impacts of Teenage Childbearing on Mothers and the Consequences of those Impacts for Government." In: Maynard RA (ed) *Kids Having Kids: Economic and Social Consequences of Teen Pregnancy.* Washington, DC: The Urban Institute Press.

Kaestner, R., S. Korenman, and J. O'Neill. 2003. "Has Welfare Reform Changed Teenage Behaviors?" Journal of Policy Analysis and Management 22: 225-248.

Leibowitz, Arleen. 1990. "The Response of Births to Changes in Health Care Costs." *Journal of Human Resources* 25: 697-711.

Leibowitz, Arleen, Marvin Eisen, and Winston K. Chow. 1986. "An Economic Model of Teenage Pregnancy Decision-Making." *Demography* 23(1): 67-77.

Levine, Phillip B. 2002. "The Impact of Social Policy and Economic Activity Throughout the Fertility Decision Tree." NBER Working Paper 9021. Cambridge, MA.

Levine, Phillip B. 2004. *Sex and Consequences: Abortion, Public Policy, and the Economics of Fertility*. Princeton, NJ: Princeton University Press.

Lundberg, Shelly and Robert D. Plotnick. 1995. "Adolescent Premarital Childbearing: Do Economic Incentives Matter?" *Journal of Labor Economics* 13(2): 177-200.

Michael, R. T. and K. Joyner. 2000. "Choices Leading to Teenage Births." Pp. 72-104 in *Sex, Love, and Health in America: Private Choices and Public Policy*, edited by E.O. Laumann and R.T. Michael. Chicago: University of Chicago Press.

Mincer, J. 1963. "Market Prices, Opportunity Costs, and Income Effects." Pp. 67-82 in *Measurement in Economics: Studies in Mathematical Economics and Econometrics in Memory of Yehuda Grunfeld*, edited by Carl Christ et al. Stanford, CA: Stanford University Press.

Moffitt, Robert. 2004. "The Temporary Assistance for Needy Family Program." Pp. 291-363 in *Means-Tested Programs in the U.S.*, Robert Moffitt (ed). Chicago: University of Chicago Press.

Moore, K. A., J. Manlove, E. Terry-Humen, S. Williams, A. Romano Papillo, J. Scarpa.

2001. *Facts at a Glance*. Child Trends.

Murray, Charles. 1984. *Losing Ground: American Social Policy, 1950-1980*. New York: Basic Books.

Oaxaca, Ronald. 1973. "Male-Female Wage Differentials in Urban Labor Markets." *International Economic Review* 14(3): 693-709.

Plotnick, R.D., I. Garfinkel, D.S. Gaylin, S.S. McLanahan, I. Ku. 1999. "Better Child Support Enforcement: Can It Reduce Teenage Premarital Childbearing?" unpublished manuscript.

Tolnay, Stewart E. and Patricia J. Glynn. 1994. "The Persistence of High Fertility in the American South on the Eve of the Baby Boom." *Demography* 31(4): 615-31.

United States Bureau of the Census. 2001. "Table 2. Percent of the Population by Race and Hispanic or Latino Origin, for the United States, Regions, Divisions, and States and for Puerto Rico: 2000." Available at http://www.census.gov/population/cen2000/phc-t6/tab02.pdf. Accessed February 22, 2005.

United States General Accounting Office. 1998. "Teen Mothers: Selected Socio-Demographic Characteristics and Risk Factors." GAO/HEHS 98-141. Washington, DC: U.S. General Accounting Office.

Whittington, Leslie A., James Alm, and H. Elizabeth Peters. 1990. Fertility and Personal Exemption: Implicit Pronatalist Policy in the United States. *American Economic Review* 80: 545-556.

Wolfe, B., K. Wilson, and R. Haveman. 2001. "The Role of Economic Incentives in Teenage Nonmarital Childbearing Choices." *Journal of Public Economics* 81: 473-511.

Table 1: Percentage of Population by Region, Division, and Race/Ethnicity: 2000

Region	White	Non-Hispanic/Latino White	African American	Hispanic or Latino (of any race)
Northeast	77.5	73.4	11.4	9.8
New England	86.6	83.9	5.2	6.3
Middle Atlantic	74.3	69.7	13.6	11.0
Midwest	83.6	81.4	10.1	4.9
East North Central	81.6	79.0	12.0	5.5
West North Central	88.4	86.9	5.7	3.4
South	72.6	65.8	18.9	11.6
South Atlantic	72.0	66.8	21.3	8.2
East South Central	77.0	76.2	20.1	1.8
West South Central	71.3	58.5	14.4	22.4
West	68.5	58.4	4.9	24.3
Mountain	80.3	70.9	2.9	19.5
Pacific	63.7	53.4	5.7	26.2

Source: U.S. Bureau of the Census (2001), Table 2.

Table 2: Descriptive Statistics of State Level Data Set, Full Sample and by Region

	Full Sample	South	Non-South
Fertility rate for women aged 15-44	65.03 (46.82)	64.69 (46.37)	65.21 (47.06)
Fertility rate for women aged 15-19	54.43 (43.60)	64.43 (42.95)	48.88 (42.96)
African American	0.135 (0.342)	0.211 (0.408)	0.094 (0.292)
Hispanic	0.114 (0.317)	0.102 (0.303)	0.120 (0.325)
Asian/Pacific Islander	0.043 (0.203)	0.022 (0.147)	0.054 (0.228)
American Indian	0.010 (0.010)	0.008 (0.088)	0.011 (0.105)
Age	30.08 (8.52)	29.98 (8.52)	30.14 (8.52)
State unemployment rate (ln)	1.75 (0.262)	1.72 (0.223)	1.77 (0.281)
Mean weekly female wage (ln)	6.12 (0.161)	6.06 (0.150)	6.15 (0.158)
Mean weekly male wage (ln)	6.58 (0.155)	6.53 (0.155)	6.61 (0.146)
Max Welfare benefits for a family of four (ln)	6.18 (0.414)	5.75 (0.277)	6.41 (0.257)
Child support enforcement expenditures (ln)	18.27 (0.937)	18.01 (0.678)	18.42 (1.023)
Parental Consent	0.441 (0.496)	0.493 (0.500)	0.412 (0.492)
Mandatory Delay	0.143 (0.350)	0.085 (0.279)	0.175 (0.380)

Notes: data described in the text; all statistics weighted by the population of women in the state aged 15-44, except the teen fertility rates.

Table 3: Mean Fertility Rates by Race, Ethnicity, and Region

Age/Region/Difference	*African American*	*Hispanic*	*White*	*Asian or Pacific Islander*	*American Indian*
15-19					
South (Standard Deviation)	96.04 (41.92)	94.23 (48.80)	47.88 (30.45)	18.87 (15.06)	65.19 (47.63)
Non-South (Standard Deviation)	96.51 (49.75)	98.24 (49.75)	33.16 (24.09)	25.21 (21.96)	72.24 (54.17)
Difference (Standard Error)	-0.47 (2.22)	-4.01 (2.32)	14.72** (1.24)	-6.34** (0.936)	-7.05** (2.45)
20-24					
South (Standard Deviation)	146.03 (19.64)	164.86 (33.76)	101.71 (14.07)	60.27 (20.55)	118.41 (44.55)
Non-South (Standard Deviation)	143.93 (25.14)	177.00 (33.00)	85.73 (22.55)	64.74 (27.08)	130.26 (62.02)
Difference (Standard Error)	2.10 (1.10)	-12.14** (1.56)	15.98** (0.945)	-4.47** (1.18)	-11.85** (2.67)
25-29					
South (Standard Deviation)	98.42 (15.55)	138.75 (23.64)	104.11 (9.87)	107.77 (26.64)	82.23 (31.01)
Non-South (Standard Deviation)	106.89 (14.95)	145.81 (26.65)	108.57 (16.51)	103.86 (20.49)	100.26 (48.77)
Difference (Standard Error)	-8.47** (0.712)	-7.06** (1.21)	-4.46** (0.687)	3.91** (1.07)	-18.03** (2.05)
30-34					
South (Standard Deviation)	59.89 (12.75)	87.68 (17.19)	73.35 (17.05)	100.94 (22.08)	43.59 (18.69)
Non-South (Standard Deviation)	71.71 (15.59)	96.08 (20.64)	87.22 (18.62)	103.04 (15.34)	61.86 (31.51)
Difference (Standard Error)	-11.82** (0.691)	-8.40** (0.919)	-13.87** (0.851)	-2.10* (0.839)	-18.27** (1.31)
35-39					
South (Standard Deviation)	26.21 (9.72)	39.80 (12.82)	28.87 (12.40)	45.89 (16.52)	16.31 (9.89)
Non-South (Standard Deviation)	33.51 (12.84)	47.29 (15.89)	35.89 (14.49)	51.92 (16.36)	28.11 (18.61)
Difference (Standard Error)	-7.30** (0.559)	-7.49** (0.702)	-7.02** (0.649)	-6.03** (0.771)	-11.80** (1.31)
40-44					
South (Standard Deviation)	5.40 (3.70)	8.85 (5.50)	4.96 (3.73)	9.69 (6.73)	3.28 (3.88)
Non-South (Standard Deviation)	7.21 (5.10)	11.95 (7.41)	6.63 (4.75)	11.96 (7.63)	6.45 (6.92)
Difference (Standard Error)	-1.81** (0.220)	-3.10** (0.321)	-1.67** (0.208)	-2.27** (0.345)	-3.17** (0.285)

Note: ** $p < 0.01$; * $p < 0.05$; I use a t-test to determine if the difference between the South and non-South women is statistically significant.

Table 4: Decomposition of the Behavioral and Compositional Components in the Difference in Southern and Non-Southern Fertility

	Composition	**Behavioral**	**Composition**	**Behavioral**
	$\beta_{ns}(\overline{R_s} - \overline{R}_{ns})$	$\overline{R}_s(\beta_s - \beta_{ns})$	$\beta_s(\overline{R_s} - \overline{R}_{ns})$	$\overline{R}_{ns}(\beta_s - \beta_{ns})$
15-19				
African Amer.	13.17	-0.11	13.10	-0.05
Hispanic	-2.20	-0.47	-2.11	-0.56
White	-2.60	9.06	-3.75	10.21
Asian/Pacific Isl.	-0.79	-0.12	-0.59	-0.32
American Indian	-0.31	-0.07	-0.28	-0.10
Sum	7.27	8.28	6.37	9.18
Difference: S – NS	15.55		15.55	
20-24				
African Amer.	17.68	0.47	17.94	0.21
Hispanic	-4.61	-1.44	-4.29	-1.75
White	-4.91	10.0	-5.83	10.91
Asian/Pacific Isl.	-2.30	-0.11	-2.14	-0.27
American Indian	-0.50	-0.10	-0.46	-0.15
Sum	5.35	8.82	5.21	8.96
Difference: S – NS	14.17		14.17	
25-29				
African Amer.	12.04	-1.78	11.09	-0.82
Hispanic	-3.89	-0.79	-3.70	-0.98
White	-4.89	-2.88	-4.69	-3.08
Asian/Pacific Isl.	-3.86	0.10	-4.01	0.24
American Indian	-0.37	-0.13	-0.31	-0.20
Sum	-0.98	-5.49	-1.62	-4.84
Difference: S – NS	-6.46		-6.46	
30-34				
African Amer.	7.98	-2.41	6.66	-1.10
Hispanic	-1.74	-0.86	-1.58	-1.01
White	-4.93	-9.21	-4.14	-10.0
Asian/Pacific Isl.	-3.41	-0.05	-3.34	-0.12
American Indian	-0.22	-0.13	-0.16	-0.19
Sum	-2.32	-12.66	-2.56	-12.42
Difference: S – NS	-14.98		-14.98	
35-39				
African Amer.	3.72	-1.46	2.91	-0.65
Hispanic	-0.54	-0.66	-0.46	-0.75
White	-2.40	-4.80	-1.93	-5.27
Asian/Pacific Isl.	-1.54	-0.13	-1.36	-0.31
American Indian	-0.08	-0.09	-0.05	-0.12
Sum	-0.85	-7.13	-0.89	-7.09
Difference: S – NS	-7.98		-7.98	
40-44				
African Amer.	0.77	-0.35	0.58	-0.15
Hispanic	-0.09	-0.25	-0.07	-0.27

White	-0.45	-1.17	-0.34	-1.28
Asian/Pacific Isl.	-0.35	-0.05	-0.28	-0.11
American Indian	-0.01	-0.02	-0.01	-0.03
Sum	-0.13	-1.83	-0.12	-1.85
Difference: S – NS	-1.96		-1.96	

Notes: author's calculations using data described in the text. Some of the totals may not sum due to rounding error.

Table 5: Division Fixed Effects in WLS Model of Teen Fertility Rates during the 1990s

Region	Division	Model 1	Model 2	Model 3	Model 4
South	South Atlantic	24.28** (3.01)	12.72** (2.85)	9.08** (2.21)	7.00 (3.99)
	East South Central	33.16** (2.64)	25.29** (2.30)	18.23** (2.64)	12.96* (6.20)
	West South Central	38.11** (1.97)	22.50** (2.18)	16.96** (1.61)	13.48* (5.23)
Northeast	Middle Atlantic	5.45** (1.40)	-2.01 (3.14)	-2.40** (2.07)	-0.291 (2.39)
Midwest	East North Central	17.27** (2.63)	14.30** (2.34)	12.12** (1.69)	12.49** (2.70)
	West North Central	9.46* (4.64)	12.40** (3.56)	7.62* (3.78)	7.29* (3.20)
Pacific	Mountain	24.09** (5.55)	18.06** (3.06)	13.29** (2.95)	12.25** (3.28)
	Pacific	24.40** (3.45)	14.10** (2.21)	12.71** (1.91)	16.25** (1.91)
Constant		33.84** (1.17)	47.92** (1.86)	265.71** (39.03)	304.30** (36.06)

Notes: * $p < 0.05$; ** $p < 0.01$. Author's calculations using data described in the text. All models weighted by the age-specific population of women. The New England division in the Northeast Division is the omitted category. Model 1 includes only division fixed effects. Model 2 adds indicators for African American, Hispanic, Asian or Pacific Islander, American Indian, and a vector of age indicators. Model 3 adds the state unemployment rates, average female weekly wage (ln), and average male weekly wage (ln) to the Model 2 specification. Model 4 adds terms for welfare benefits (ln), CSE expenditures (ln), and abortion policy measures to the Model 3 specification.

Table 6: Models of Outcomes for Mothers in Different Regions of the Country, 1990 and 1999

	Division	Probability Nonmarital Birth		Years of Education	
		1990	1999	1990	1999
South	South Atlantic	-0.066** (0.001)	-0.067** (0.001)	-0.271** (0.006)	-0.321** (0.006)
	East South Central	-0.081** (0.001)	-0.089** (0.001)	-0.477** (0.007)	-0.541** (0.007)
	West South Central	-0.148** (0.001)	-0.111** (0.001)	-0.347** (0.006)	-0.370** (0.007)
Northeast	Middle Atlantic	-0.001 (0.001)	-0.001 (0.001)	-0.097** (0.006)	-0.232** (0.007)
Midwest	East North Central	-0.032** (0.001)	-0.026** (0.001)	-0.299** (0.006)	-0.387** (0.006)
	West North Central	-0.032** (0.001)	-0.040** (0.002)	-0.128** (0.007)	-0.229** (0.007)
Pacific	Mountain	-0.043** (0.001)	-0.068** (0.001)	-0.061** (0.007)	-0.198** (0.007)
	Pacific	0.006** (0.001)	-0.042** (0.001)	-0.657** (0.006)	-0.421** (0.007)

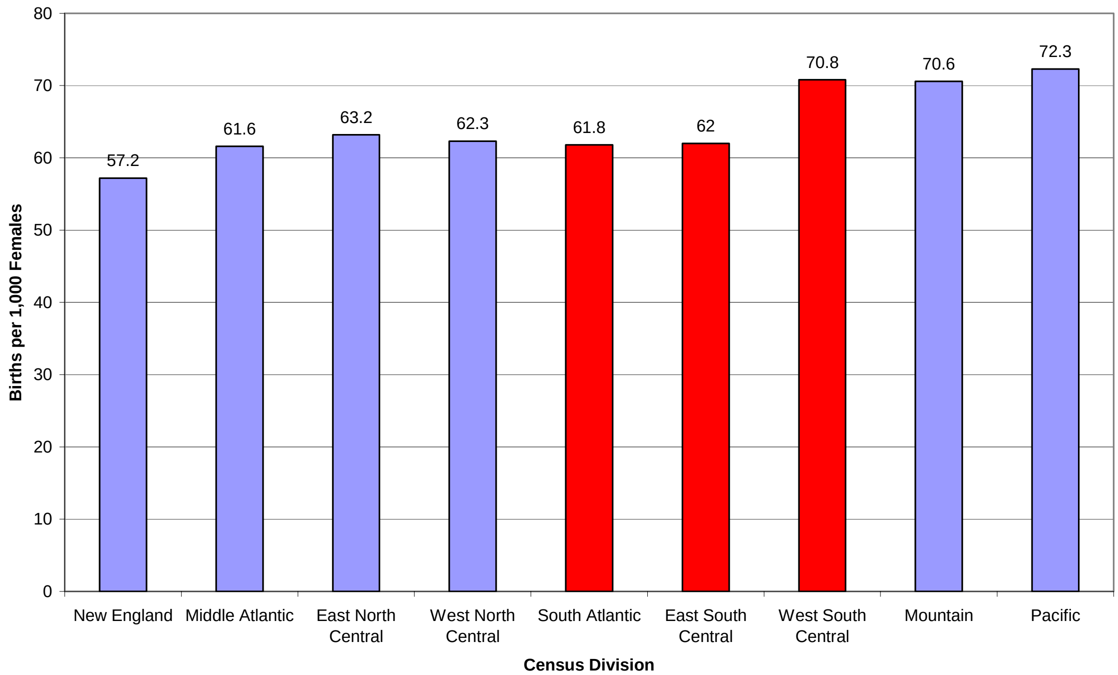
Notes: * $p < 0.05$; ** $p < 0.01$. Author's calculations using data described in the text. The New England division in the Northeast Division is the omitted category. Controls for all models include a vector of age dummies from 15 through 43. The 1990 models include race variables for African American, American Indian, Chinese, Japanese, Hawaiian, Filipino, Other Asian/Pacific Islander, and Other. The 1999 models include race variables for African American, American Indian, Japanese, Hawaiian, Filipino, Asian/Indian, Korean, Samoan, Vietnamese, Guamanian, and Other Asian or Pacific Islander, and Other. The results for both years also includes an indicator for Hispanic. The results reported for nonmarital births are marginal effects. Sample size for 1990 is 3,837,461 and for 1999 the sample size is 3,870,021.

Table 7: Models of Outcomes for Teenage Mothers in Different Regions of the Country, 1990 and 1999

	Division	Number of Births		Probability Nonmarital Birth		Years of Education	
		1990	1999	1990	1999	1990	1999
South	South Atlantic	0.018** (0.005)	0.052** (0.005)	-0.247** (0.005)	-0.201** (0.006)	-0.192** (0.014)	-0.246** (0.014)
	East South Central	0.034** (0.005)	0.081** (0.005)	-0.328** (0.005)	-0.298** (0.007)	-0.207** (0.015)	-0.270** (0.015)
	West South Central	0.034** (0.005)	0.083** (0.005)	-0.432** (0.005)	-0.266** (0.006)	-0.101** (0.014)	-0.141** (0.014)
Northeast	Middle Atlantic	-0.032** (0.005)	0.005 (0.005)	-0.070** (0.005)	-0.051** (0.005)	0.188** (0.015)	-0.039* (0.015)
Midwest	East North Central	0.018** (0.005)	0.062** (0.005)	-0.141** (0.005)	-0.099** (0.005)	0.085** (0.014)	-0.109** (0.014)
	West North Central	0.012** (0.006)	0.044** (0.006)	-0.115** (0.006)	-0.120** (0.006)	0.0154** (0.015)	-0.039* (0.016)
Pacific	Mountain	0.006 (0.006)	0.047** (0.005)	-0.177** (0.006)	-0.181** (0.006)	0.333** (0.015)	0.072** (0.016)
	Pacific	-0.021** (0.005)	0.020** (0.005)	-0.170** (0.005)	-0.158** (0.006)	-0.095** (0.015)	0.144** (0.015)

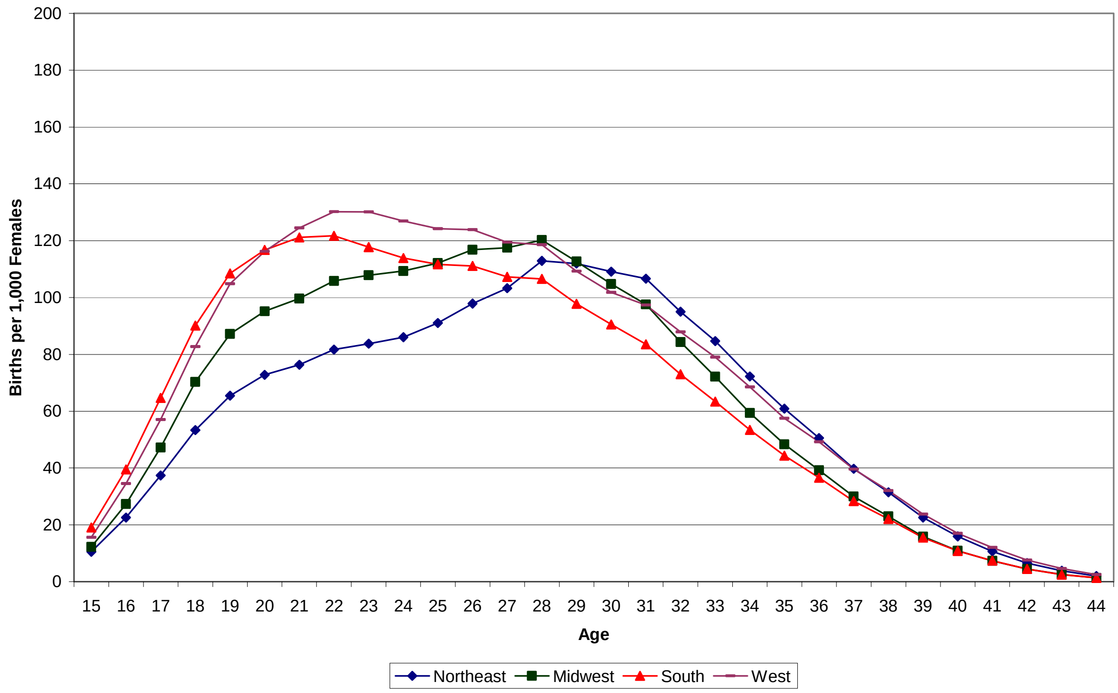
Notes: * $p < 0.05$; ** $p < 0.01$. Author's calculations using data described in the text. All models weighted by the age-specific population of women. The New England division in the Northeast Division is the omitted category. Controls for all models include a vector of age dummies from 15 through 19. The 1990 models include race variables for African American, American Indian, Chinese, Japanese, Hawaiian, Filipino, Other Asian/Pacific Islander, and Other. The 1999 models include race variables for African American, American Indian, Japanese, Hawaiian, Filipino, Asian/Indian, Korean, Samoan, Vietnamese, Guamanian, and Other Asian or Pacific Islander, and Other. The results for both years also includes an indicator for Hispanic. The results reported for nonmarital births are marginal effects. Sample size for 1990 is 491,550, and the sample size for 1999 is 464,945.

Figure 1: Fertility Rates for Females Aged 15 to 44 by Census Division



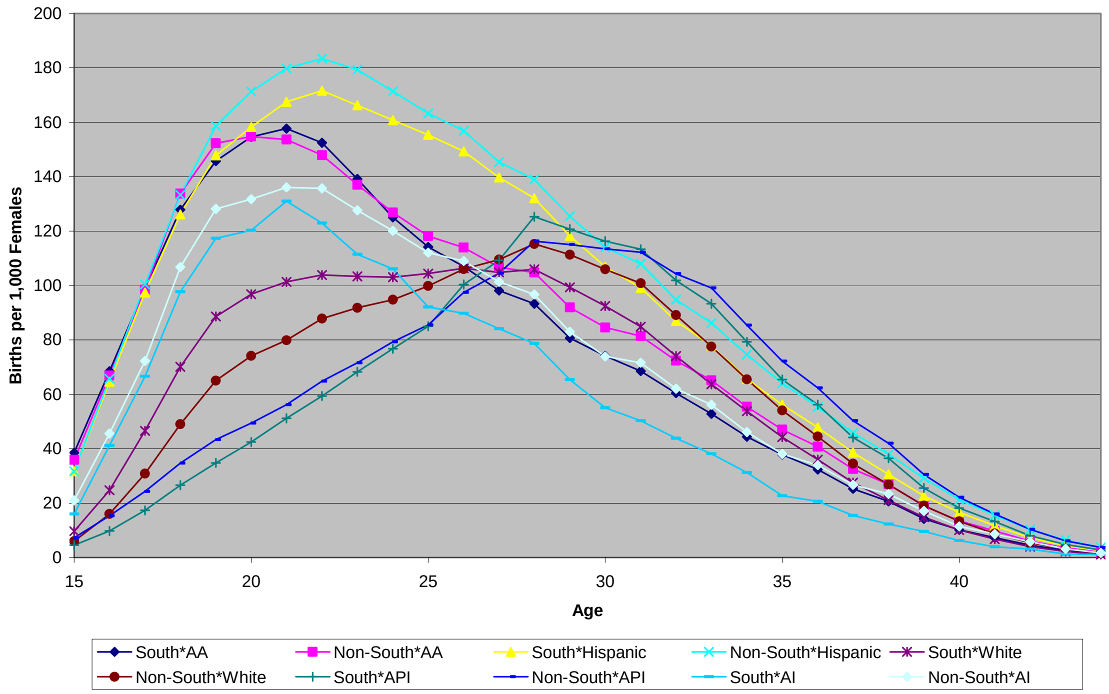
Source: Authors calculations using data described in text.

Figure 2: Average Annual Age-Specific Fertility Rates by Census Region



Source: Authors calculations using data described in text.

Figure 3: Mean Age-Specific Fertility Rates by South and Race/Ethnicity



Source: Authors calculations using data described in text.